

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-11 are presently pending in this case. Claims 1-11 are amended and Claims 12-14 are canceled without prejudice or disclaimer by the present amendment. As amended Claims 1-11 are supported by the original claims, no new matter is added.

In the outstanding Official Action, the drawings, specification, and title were objected to; Claims 11-14 were rejected under 35 U.S.C. §101; and Claims 1-14 were rejected under 35 U.S.C. §103(a) as unpatentable over Garcia et al. ("Face Detection Using Quantized Skin Color Regions Merging and Wavelet Packet Analysis," hereinafter "Garcia") in view of Hong et al. (U.S. Patent No. 6,819,796, hereinafter "Hong").

With regard to the objection to the drawings, it is respectfully submitted that the present drawings clearly show all structural details essential for a proper understanding of disclose invention, in compliance with MPEP §608.02(d). In this regard, it is respectfully noted that many of the figures show images during intermediate processing steps, and thus should not be expected to resemble "clear" images. Each objected to figure is specifically addressed herebelow:

Figures 7 and 8 are examples of Eigenblocks. It is respectfully noted that Eigenblocks are inherently fuzzy in nature. The fuzzy and varying nature of the blocks is conveyed by the figures. Thus, these figures are believed to be proper.

Figures 13 A-C (bottom) resemble noise as they are probability maps of an image. However, the part of the map where a face is detected (resulting in a dark spot in the map) is highlighted in each case and is believed to be visible and legible, and to clearly correspond to the person in the back-left of the corresponding source image (top).

Figures 17 A-C shows A: a face (distorted), B: the face with an elliptical window placed upon it, and C: a black and white mask in which the 50% of pixels that most closely match the color model for the face are white. These figures are believed to be proper, as again they are not intended to be “clear.”

Figure 18 is an example of a color model distance map (i.e. indicating where on an image the color model does or does not approximate that of a face). Again, it therefore is not meant to resemble a conventional picture of a person. It is clear from the figure that the area corresponding to the person's face scores strongly, which is accurately shown by the figure.

Figure 25 shows images of two locations, together with corresponding video conferencing screens on which selected faces are shown in isolation. It is respectfully submitted this figure accurately shows these features.

Figures 27A and B represent an image and a zoomed version of the image. It is respectfully submitted these figures clearly show these features.

Figure 29 is believed to clearly show three people, each identified and labeled.

Figure 30 then shows the same original image, but with ‘thumbnails’ of the three people displayed separately. It is respectfully submitted that these images are perfectly comprehensible and display the items described by the accompanying text.

Figure 32 is believed to clearly show a main image of a first person and thumbnails of two other video conference participants to which the view can be switched.

Accordingly, the objection to the drawings is believed to be overcome.

With regard to the objections to the specification and title, the specification and abstract are amended herewith to place them in conformance with U.S. practice. The title is amended as suggested the outstanding Office Action. No new matter is added. Accordingly, the objections to the specification and title are believed to be overcome.

With regard to the rejection of Claims 11-14 under 35 U.S.C. §101, Claim 11 is amended to recite “a tangible computer readable medium,” which is article of manufacture. Accordingly, it is respectfully submitted that Claim 11 is in compliance with all requirements under 35 U.S.C. §101. Claims 12-14 are canceled without prejudice or disclaimer herewith, making this rejection moot with respect to these claims.

With regard to the rejection of Claim 1 as unpatentable over Garcia in view of Hong, that rejection is respectfully traversed.

Claim 1 recites in part:

a pre-processor configured to identify low-difference regions of the test image where there exists less than a threshold image difference across groups of pixels within those regions; and

a face detector configured to perform face detection on regions of the test image other than those identified by the pre-processor as low-difference regions.

The outstanding Office Action cited steps 1b and 5 on Figure 3 of Hong as describing “a pre-processor” and page 265 of Garcia as describing “a face detector” as recited in Claim 1.¹

With regard to Garcia, Garcia merely discloses face detection across *entire* I frames. The cited portion of Garcia, DiVan and the preliminary work of page 265, column 2 of Garcia, gives no hint whatsoever that pre-processing, to eliminate low-difference regions of an image from consideration for face recognition, has occurred. In fact, the details about this work given in column 2 suggest that the “huge amount” of indexing entire frames was reduced by only performing recognition in so-called MPEG I frames. However, even while working only in I frames, in those frames a skin-tone mask was determined for and applied to the *whole* image. The facial recognition system then looked for the largest candidate face area in the masked image. Thus it appears that in fact Garcia teaches the use of a skin-color

¹See the outstanding Office Action at page 7, lines 6-20.

based mask applied to the ***whole image***, and therefore does not specifically include, exclude or in any way consider the differences between pixel values within regions of an image.

Accordingly, Garcia does not teach or suggest “a face detector configured to perform face detection on regions of the test image ***other than those identified by the pre-processor as low-difference regions.***”

With regard to Hong, it is respectfully submitted that Figure 4 of Hong clearly shows that the ‘difference’ referred to in Hong is that between a reference, background image (1b) and a second, current image in which someone is standing in the foreground. The difference image (5) is thus the difference between a current image and a reference image to determine what has changed. Clearly, this has nothing whatsoever to do with determining the differences in pixel values within ***regions*** of a ***single*** image. Accordingly, Hong does not teach or suggest “a pre-processor configured to identify ***low-difference regions of the test image*** where there exists less than a threshold image difference across groups of pixels within those regions.”

Finally, it is respectfully submitted that the requirement in Hong to have a reference background image available makes it unsuitable for combination with the face recognition system of Garcia, which will not routinely have access to such reference imagery. As a result, the proposed combination requires a substantial reconstruction and redesign of the device described by Garcia. As this results in a change in the principle of operation of the device described by the primary reference, the teachings of the references are not sufficient to render the claims *prima facie* obvious. See *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959) and MPEP §2143.01.

Thus, it is respectfully submitted that neither Garcia nor Hong teach or suggest either of the elements recited in Claim 1, and further there is no suggestion or motivation to

combine these references. Consequently, Claim 1 (and Claims 2-9 dependent therefrom) is patentable over Garcia in view of Hong.

Claim 10 recites in part:

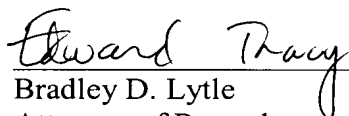
identifying low-difference regions of the test image
where there exists less than a threshold image difference across
groups of pixels within those regions; and
performing face detection on regions of the test image
other than those identified by the pre-processor as low-
difference regions.

As noted above, Garcia only discloses face detection across *entire* I frames. Thus, Garcia does not teach or suggest “performing face detection on regions of the test image *other than those identified by the pre-processor as low-difference regions.*” Further, Hong only describes determining a difference image between a current image and a reference image to determine what has changed. Therefore, Hong does not teach or suggest “*identifying low-difference regions of the test image* where there exists less than a threshold image difference across groups of pixels within those regions.” Finally, as the proposed combination of Hong with Garcia would change the principle of operation of Garcia, there is no suggestion or motivation to make the proposed combination. Consequently, Claim 10 (and Claim 11 dependent therefrom) is also patentable over Garcia in view of Hong.

Accordingly, the pending claims are believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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